AN ANALYSIS OF BUREAUCRATIC WAGES AND LEVELS OF CORRUPTION

A Thesis

By

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ABSTRACT

AN ANALYSIS OF BUREAUCRATIC WAGES AND LEVELS OF CORRUPTION

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Utilizing wage and corruption data, this paper sets out to examine the relationship between the level of corruption and the wages provided to civil servants. I analyze the relationship between several important economic and labor variables and levels of corruption in thirty states. These states are representative of all regions and levels of corruption. According to my analysis, there is a strong correlation between lower levels of corruption and higher wages in the civil service. When the bureaucracy is categorized into managerial and clerical groups, I find that the effect of increasing wages is *twice as large* for clerical workers then it is for managerial workers.

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Introduction

The goal of this thesis is to determine the relationship between the level of corruption within a state and the salaries of its civil servants. My primary hypothesis is that as bureaucratic wages increases, the level of corruption decreases. Presumably, if wages are increased the need to accept bribes or engage in malfeasance could be reduced, thus leading to a decrease in corruption. The existing literature on the subject is split: some scholars say wage increases could be an effective method for controlling corruption, while others disagree. In the end, however, the empirical research provides mixed results. In this thesis I test the wage increase hypothesis on different categories of civil servants. While the nature of corruption at the highest level of government is based primarily on a desire for power and wealth, I posit that low level civil servants – with lower salaries – are more likely to engage in corruption to supplement their income. My results suggest that further analysis of how different categories of bureaucrats respond to wage incentives could potentially resolve this debate.

What is Corruption?

While the definition of corruption varies slightly among scholars who study the subject, the basic agreement is that corruption is simply, "a misuse of public office for private gains" (Treisman, 2000, p. 437). Corruption can come in many different forms and most often, depending on the level and degree of corruption within a society, can have

devastating effects not only on developing economies, but more advanced economies as well. Corruption can include the misuse of public funds by legislators or officers in the executive and judicial branches of government, bribery, cronyism, embezzlement, financial fraud and many others. While this list is not meant to be complete, it is obvious that these activities create environments where development and the legitimacy of the democratic process can be hurt. While the individuals engaged in malfeasance may benefit, the civil society may be hurt in the process.

From an investment perspective, corruption is typically a road block for foreign and domestic investment. Accordingly, corruption typically,

> favors those with no scruples and those with connections over those that are the most efficient. It produces inefficiency because the need to pay bribes is an entry barrier, and firms that make payoffs may expect no only to win the contract or the privatization auction, but also to obtain inefficient subsidies, monopoly benefits, and regulatory laxness in the future (Rose-Ackerman, 1996, p. 2).

Corruption also undermines the legitimacy of political systems throughout the world. Regardless of the level of development within a society, corruption effects all economic and social groups throughout the world. By understanding how to reduce corruption, policy makers and scholars can provide an excellent analysis of how to restore legitimacy and stability to less developed countries.

Types of Corruption

Understanding how to combat these types of activities requires us to understand and categorize corrupt behavior. Victor Dike (2005), a scholar of corruption in Africa, has

created a categorization scheme which helps break down different types of corruption. When people think about corruption, they typically think of the military general who has seized power in a bloody coup and raids the national treasury to pay for elaborate mansions and vacations. While this is a form of corruption, different forms of malfeasance occur at different levels of society. Dike breaks down corruption into three categories, *political*, *bureaucratic* and *electoral*. Accordingly, these categories, although committed by different socio-economic-political groups, have different effects on different groups. The three types of corruption are important to identify because it allows scholars to examine how corruption is affecting different states domestically and internationally.

Political corruption exists mostly among the political elite and legislators at all levels of government. Through manipulating the political system these politicians are capable of filling their own pockets. This includes awarding fraudulent contracts, manipulating parliamentary procedures, and enacting laws which give politicians and their crony's enhanced power in the "democratic" framework (Dike, 2005).

Electoral corruption is dominated entirely by a small group of individuals and oligarchs, at the local, state and national levels. Electoral corruption, unlike political or bureaucratic corruption, is a means to end, opposed to being the ends itself. Electoral corruption will not directly fill the wallets of corrupt leaders or politicians, however once political office is achieved, the political corruption can begin. Electoral corruption begets political corruption, and includes, "purchases of votes with money or services, promise of office or special favors, coercion, intimidation and interference with freedom of elections" (p. 6).

Bureaucratic corruption occurs typically among the lower and middle classes of society. Police, regulators, customs and traffic officials and other civil servants are the primary perpetrators of this type of corruption. According to Dike, bureaucratic corruption is based out of need and survival, opposed to political and electoral corruption which is based entirely on desire and want (Dike, 2005).

Combating Bureaucratic Corruption

The main focus of this paper is the study of bureaucratic corruption. While both political and electoral corruption plays an important role in the economic development and social well being of a state, understanding bureaucratic corruption may provide a better understanding of how corruption affects societies.

The aim of this paper is to improve our basic understanding of the relationship between bureaucratic wages and levels of corruption. The basis of the corruption-wages theory comes mostly from Rational Choice theorists who believe that actors make decisions based on their best interest. If bureaucratic corruption presumably occurs because of a need to supplement income, than an analysis of civil service wages is an important starting point for analyzing the policy implications of fighting corruption by paying higher wages.

The major debate concerning the wage-corruption hypothesis lies between Rational Choice theorists and Structural theorists. Rational Choice theorists posit that increasing wages is an effective method for decreasing overall corruption. While advocates of the wage-corruption connection believe raising bureaucratic wages would impose a financial burden on the state, many believe that the benefits of increasing wages would outweigh the costs of such a policy. Rational Choice theorists believe that raising the wages of civil servants to a

level comparable to higher wage occupations, higher skilled and thus less corrupt individuals may be attracted to the bureaucracy. This solution to raise wages makes sense, since bribery and other similar petty offense are possibly committed in order to make more money to supplement low incomes.

Structuralists on the other hand believe that the effect on corruption by increasing wages is negligible, and there should be more of a focus on structural elements of the state. Some of these elements include: former colonial status, parliamentary systems vs. presidential systems, government type, federal states vs. unitary states, economic system, religious demographics, and/or government type.

There are several other methods which have been discussed that could potentially combat corruption. From a Structural standpoint, fundamental changes in the framework of the state could lead to decreasing levels of corruption. First, states must have legitimately elected political authorities, such as a President or Prime Minister. Through legitimacy comes support from the international community. States should also attempt to pursue transparency in government and state institutions. This transparency should be coupled with the introduction of independent watch-dog groups which can monitor the behavior of governments. By addressing issues of transparency, it makes it more difficult for agents of the state to hide stolen assets, accept bribes, embezzle state funds or even engage in shady backdoor deals. A good example of how to increase transparency in government could be requiring government employees to declare all assets and incomes. By doing this independent and state actors can monitor civil servant and politician financial activity. Countries should also make government regulations simpler and easier to enforce. By doing

this, states can not only reduce the opportunities for malfeasance, but also make the rules and regulations fairer (McNamara, 2001).

There has also been discussion of increasing civil liberties and individual freedoms as a method of fighting corruption. Encouraging a free press and free access to information can aid in the outing of corrupt politicians and create an atmosphere where engaging in corrupt behavior may land an individual on the front page of regional newspapers or even on the internet. Freedom of information can also be utilized to educate the population concerning the cause and effects of corruption. Finally, states should guarantee due process and fair and equitable enforcement of rules and regulations regarding anti-corruption measures (McNamara, 2001).

Finally, there are a number of economic policies which can be implemented to combat corruption. First, states can require businesses to include anti-bribery or anti-fraud clauses in contracts and also require financial institutions to monitor and report any suspicious financial activities regarding these businesses. Governments may also establish more obstacles for transferring funds from domestic institutions to international institutions. States giving foreign aid may also require financial institutions to monitor the incomes of high level politicians and leaders. If nations with high levels of corruption fail to enact any of these corruption fighting measures then other states may simply deny foreign aid to these countries (McNamara, 2001).

The methods discussed above illustrate how corruption cannot be fought through one method, but instead from several different approaches. While raising wages of civil servants is a possible method that may be utilized to fight corruption at the lowest to middle levels of

government, the highest levels of government must also be held accountable in order for an overall decrease in corrupt activities to occur. While these points seem like common sense, the issue is whether or not they can actually be effectively implemented. The majority of these measures require an active approach on the part of the executive and legislative branches of government, which are typically responsible for the most severe forms of corruption. So, although these measures could be effective in dealing with corruption, the problem still lies in the willingness of the political elite to properly adopt and enforce these initiatives. In democratic societies this seems as easy as electing officials who are honest and competent. However with the level of political and electoral corruption which exists in these states, this may be a difficult task. If electoral systems are dominated by corrupt politicians, then electing honest individuals may be almost impossible.

Literature Review

While there are some important differences in the way that some scholars define corruption, there seems to be a general agreement that corruption can be conceptualized as the misuse of public resources for private gains. As long as there have been political systems, there have existed individuals who have attempted to make private gains from public work. There are two major schools of thought that consider the effect of wages on corruption: *Rational Choice* and *Structuralist*. Rational Choice theorists argue that increased wages can lead to a general decrease in corruption because of the nature of the actor who is engaging in corruption. Becker and Stigler (1974) and Mookherjee and Png (1995) argue in their papers that individuals accept bribes because of necessity and not some evil motive. The Structuralists on the other hand believe that the structure of the state has more to do with corruption than bureaucratic wages. Rauch and Evans (2000) and Daniel Treisman (2000) both find that changes in the structure of the state have a far more important effect on decreasing corruption than wages; however, they find the lack of strength of the wage-corruption correlation to be surprising. Van Rijckeghem and Weder (2001), on the other hand, find that while there is a correlation between wages and corruption, that there would have to be a very large increase in wages to have any effect on corruption.

Rational Choice Theory

Rational Choice theorists such as Becker and Stigler (1974) and Mookherjee and Png (1995), posit that increasing wages is an effective method for decreasing overall corruption. While advocates of the wage-corruption connection believe raising bureaucratic wages would impose a financial burden on the state, many believe that the benefits of increasing wages would outweigh the costs of such a policy. For example, Becker and Stigler (1974) write:

> The fundamental answer is to raise the salaries of enforcers above what they could get elsewhere, by an amount that is inversely related to the probability of detection, and directly related to the size of bribes and other benefits of malfeasance (p.6).

This solution to raise wages makes sense, since according to Dike (2005) bribery and other similar petty offense are committed in order to make more money to supplement low incomes.

Becker and Stigler (1974) provide an excellent analysis of how wages and compensation could effect corruption. The essay examines how increasing wages and compensation packages can lead to a general decrease in corruption. It also briefly examines how increasing penalties for corruption would actually be less effective in fighting such behavior because of the costs of detection and enforcement. For this reason, increasing wages of civil servants would have a benefit that exceeds the cost of raising wages.

Becker and Stigler (1974) write that in order for increased wages to have a noticeable impact, the new salaries must equal the relative size of the bribes. This in turn would raise the cost of detection on the part of the employee, while increasing the overall benefit to their employer. They also believe that in order for the new pay to be effective, the new wage

structure must have three components, "an 'entrance fee' equal to the temptation of malfeasance, a salary premium in each year of employment equal to the income yielded by the 'entrance fee', and a pension with a capital value approximately equal also to the temptation of malfeasance" (p.9). Becker and Stigler also address the issue of firing employees for no reason in order to avoid paying the "employment premiums."

According to the equations utilized by Becker and Stigler (1974), increased risk of termination would inevitably lead to increased salaries. It is their belief that increased wages lead to better enforcement, which benefits the state more than firing enforcers without cause. This also leads to another interesting aspect, which the Becker and Stigler (1974) note, "the greater their salary, the greater the stake of enforcers in litigating efforts to fire them proving their innocence: they would have to try to arrange for compulsory hearings on dismissals, appeals procedures, and the like" (p.10). Thus enforcers would be less likely to engage in corruption because they would lose the ability to prove their innocence, and thus the state would be less likely to engage in frivolous terminations because of the fear of litigation.

One of the major strengths of Becker and Stigler's (1974) work is the emphasis on individual behavior. If an individual asks for a bribe in order to feed his or her family, then it makes sense to increase wages in order to reduce temptation. The few variables they include provide a sharper analysis of corruption, while leaving plenty of room for additional analysis of structural factors regarding the subject.

Mookherjee and Png (1995) argue that increasing penalties for corruption may actually lead to an increase in corrupt behavior. Although Mookherjee and Png (1995) agree

with Becker and Stigler (1974) concerning wage increases, the overall focus of the paper is the effect of increased penalties.

Utilizing a case study involving enforcement of pollution standards, Mookherjee and Png (1995) believe that increased penalties would backfire for several reasons. First, the increased penalty may actually increase the amount for bribes opposed to decreasing corruption. Secondly, the authors argue that, "the prospect of a bribe encourages the inspector to monitor and the bribe itself represents a price for pollution, albeit on that does not go to the government" (Mookherjee and Png, 1995, p. 146). Mookherjee and Png believe that increased penalties may reduce the incentive to monitor, and in their pollution case study, would lead to an increase in pollution. The authors also note that penalties may be ineffective because the monitor supervisors may have a difficult time distinguishing between legitimate and illegitimate under-reporting. Accordingly, this leads to, "a penalty on the inspector for underreporting, which is the mirror image of the commission on fines collected from the factory" (p.146).

Mookherjee and Png (1995) take a somewhat different approach than Becker and Stigler (1974) in their analysis of corrupt civil servants. According to Mookherjee and Png's (1995) calculations, small increases to either penalties or wages may actually have a negative impact on corruption and lead to an increase in bribes. Additionally, this would ultimately require a substantial increase in both penalties and rewards. According to different calculations however, Mookherjee and Png (1995) find that while the bribes may increase to the inspector, this would also lead to increased costs to the factory for polluting. Mookherjee and Png (1995) conclude that while increasing wages for enforcers may not be the perfect

policy that Becker and Stigler (1974) believe it is, it is still far more effective than simply raising penalties.

There are many important aspects of Mookherjee and Png's (1995) analysis. First, their analysis of the effect of penalties provide and important tool to formulating policies combating corruption. Mookherjee and Png (1995) believe that examining a few key variables, in this case penalties and wages, is an important and effective way to measure the effects of combating corruption. This strength mirrors that of Becker and Stigler's (1974) approach, utilizing few variables, which provides a sharp analysis of how to combat corruption.

Although there is some useful analysis, the weaknesses of Mookherjee and Png (1995) are similar to those of Becker and Stigler (1974). Providing a more effective enforcement structure requires a more stable state; the data suggests most corrupt states are typically the least developed. In order for increased wages to be effective, stability of the political and economic systems must be achieved; however, this can be seen as a "chicken or the egg" problem. Can the state provide proper enforcement with a poor economic/political structure, or would proper enforcement help stabilize the system? Secondly, while Mookherjee and Png (1995) note that, "bribery is an ineffective way of encouraging the inspector to monitor," it seems like their calculations show that bribery does encourage factories to pollute less because of the risk of having to pay a bribe (p. 156). It almost seems as though their conclusions are mixed, and that overall the effects of all their variables are ambiguous.

Structuralists

On the other hand, Structuralists such as Treisman (2000), Rauch and Evans (2000), and Van Rijckeghem and Weder (2001) believe that wages have little effect on levels of corruption. Each essay examines different aspects of state structures and how they relate to the level of corruption within the state. While the Structuralist authors note there is some connection between bureaucratic wages and corruption, they note that the effect may either be negligible, ambiguous, or the result of some other variable.

Rauch and Evans (2000) argue that only the proper structuring of the bureaucratic framework can properly combat corrupt behavior. In their work, they analyze the effect of competitive salaries, promotion from within the ranks of the civil service, career stability and recruitment by merit on the level of corruption within a state. Rauch and Evans (2000) utilize Max Weber's breakdown of the state in their analysis of what bureaucratic features create the least corrupt state structure. Rauch and Evans note that Weber argues that, "replacement of a patronage system for state officials by a professional state bureaucracy is a necessary (though not sufficient) condition for a state to be developmental" (p. 50).

The "Weberian" model posits that recruitment and promotion by a merit system seems to be more effective than increasing wages or even addressing penalties. Rauch and Evans (2000) believe that merit is important in forming an effective civil service because by forcing conditional entrance into the bureaucracy based on exams or a university degree, this creates an environment which, "increases each officials concern with what his colleagues think of him, leading to greater adherence to norms or behavior" (p. 51). In other words, since each member's entrance into the bureaucracy is based on merit opposed to patronage,

stronger ties and a sense of brotherhood exist between the members, and each member wishes to be effective in the eyes of their colleagues.

Not only do Rauch and Evans (2000) think that merit is important to entrance into the civil service, but that employing merit in promotion inside the bureaucracy also helps create effective enforcement of the law. They believe that, "a principal who values exercise of power highly will spend more time supervising his agents to insure that they are carrying out their tasks…and less time looking for ways to line his own pockets" (p. 52). This creates an environment where agents who wish to become principals are more likely to properly enforce the laws in order to receive promotions. The authors argue that this creates a cycle where agents enforce existing rules to please their principals, which increases their chances of promotion.

Rauch and Evans (2000) employ three measures of bureaucratic structure to measure bureaucratic effectiveness. They utilize various surveys to measure the degree that merit is used to hire and promote civil servants, the degree that merit is utilized to appoint or select members of the executive level of the bureaucracy and finally the level of difference in wages between the private and public sectors. Their variables measuring bureaucratic effectiveness include the likelihood that civil servants will receive bribes, the autonomy and expertise of the bureaucracy and the speed and efficiency of the civil service in accomplishing their specific tasks.

They find that the most important variables in determining the effectiveness, and therefore the least corrupt, bureaucracies are those based primarily on merit systems. They find that, "meritocratic recruitment is the element of Webarian bureaucracy that is the most

important for improving bureaucratic performance" (p. 67-68). They also conclude that internal promotion and career stability play a secondary role in bureaucratic effectiveness.

In regards to the effect of relative salaries however, they find that although there is a moderate correlation between salary and corruption, the results of their study are not statistically significant. Rauch and Evans find this, "surprising, especially when one considers that if bureaucrats were being paid for performance, one might have expected a positive association between higher salaries and our bureaucratic performance measures because the later cause the former rather than vice-versa" (p. 61).

There are a number of strengths provided by the Rauch and Evans (2000) work. First, Rauch and Evans (2000) examine the existing state structure, instead of looking at how the behavior of individuals affects corruption. It is the limitations and constraints placed on individuals by the structure of the state opposed to the interests of individuals which affects levels of corruption. Rauch and Evans (2000) clearly state how the system should be established in order to create an effective bureaucracy. Second, Rauch and Evans (2000) work provides a unique perspective of how merit plays a role in reducing corruption. This helps provide an excellent analysis of how structure affects civil service effectiveness.

The weaknesses of this article are less apparent than its strengths. The primary weakness I found was that Rauch and Evans (2000) seem to only identify structural features which promote a healthy civil service, but provide little explanation of why individuals in less developed states have bureaucracies which are more corrupt. Perhaps including some Rational Choice elements, scholars could gain a better understanding of the connection between the structure and the individuals who are members of the structure.

Van Rijckeghem and Weder (2001) sets out to simply establish the effect of increased civil service wages when other structural variables are included, primarily rule of law and bureaucratic effectiveness. While Van Rijckeghem and Weder (2001) set out to examine this relationship, they believe that the argument established by Becker and Stigler (1974) and Mookherjee and Png (1995) may have its merits. First, Van Rijckeghem and Weder (2001) believe that bribes are typically low, so therefore even small increases in wages can reduce corruption. Secondly, Van Rijckeghem and Weder (2001) believe that Becker and Stigler (1974) may be correct in assuming that entry premiums such as pensions or employee litigation can reduce the overall wages needed to reduce corruption. Third, societal condemnation of corruption may increase with higher wages, leading to a decrease in malfeasance because of a fear of being ostracized by the society. Finally, Van Rijckeghem and Weder (2001) note that corruption among low level bureaucrats may be a result of "need" opposed to "desire." The four issues listed above by the authors drive their empirical analysis of the effects of wages on levels of corruption. Van Rijckeghem and Weder (2001) utilize three variables in analyzing corruption: comparison of civil service wages versus the manufacturing sector wages, rule of law and quality of bureaucracy.

Although Van Rijckeghem and Weder (2001) find a negative correlation between increased wages and level of corruption (as wages increase, corruption decreases), they believe that the result of their study, "implies that a large increase in wages is required to eradicate corruption solely by raising wages" (p. 307). Utilizing their data to compare wages and the rule of law/quality of bureaucracy however, they find, "that a one-point increase in relative wages…leads to a half-point reduction of corruption" (p. 316). Van Rijckeghem and Weder (2001) ultimately conclude that increased wages work to decrease corruption only

when rule of law and bureaucratic quality is high. Van Rijckeghem and Weder (2001) believe that high wages influence the level of corruption through strong rule of law and high bureaucratic quality.

This work's primary strength comes from its omission of cultural variables. Van Rijckeghem and Weder (2001) make an excellent point in stating that culture is difficult to measure. Omitting culture from quantitative cross-national analysis of corruption allows scholars to make broad assumptions across multiple states. Since cultures are unique to each state, utilizing culture in an analysis of corruption limits scholars to examining only one state at a time. There are a number of weaknesses however. First, Van Rijckeghem and Weder's (2001) decision to utilize a data-set including only low-income state seems limiting. It seems that in order to gain a more comprehensive understanding of corruption, Van Rijckeghem and Weder (2001) should have included states from all income levels in their analysis. Secondly, the use of only three variables also seems limiting. While Van Rijckeghem and Weder's (2001) wages variable falls in line properly with other works, their rule of law variable and bureaucratic quality variables require some further explanation.

Treisman (2000) analyzes some of the core structural factors which cause corruption. Utilizing several different indexes of perceived corruption, the author looks at how various cultural, historical, economic, political and governmental institutions affect the level of corruption within a society. He believes that analyzing these various factors, scholars can paint a picture of why some states are more corrupt than others. Treisman (2000) analyzes twelve different variables which include, common law systems, former British colonies, Protestant states, democratic states, economic development, high public sector wages,

political stability, level of state intervention in the economy, import competition, amount of natural resources, ethnic divisions and federal structure.

Treisman (2000) concludes that of these twelve variables only half of them play an important role in understanding the difference in corruption between states: democratization, Protestant tradition, colonial heritage, economic development, federalism and the competition of foreign imports. First, Treisman (2000) argues that simply becoming a democracy does not decrease the level of corruption within a state, but instead, "what does matter is whether or not it has been democratic for decades" (p. 439). Accordingly, the democratization process leads to a slow, often painful decrease in corruption. As stated above, this often takes decades as opposed to years. Second, Treisman (2000) finds the higher level of foreign imports, the less corrupt a society is likely to be. Treisman (2000) notes however, that in order for foreign imports to have any effect on corruption, there must be a rather large increase, in some cases more than triple the existing level. Third, Treisman (2000) finds that larger numbers of Protestants in a population lead to a smaller amount of corruption. Fourth, states with a British colonial heritage are far less likely to be corrupt. Treisman (2000) attributes this to the fact that many of these states have adopted a common law legal system. He believes that this type of legal system is administered in a way that promotes fairness opposed to divisions between social classes. Treisman's (2000) results are even significant for the newest former British colonies in Africa and Asia. Fifth, Treisman (2000) finds that economic development plays a major role in reducing corruption, primarily through increases in education. Treisman believes that, "policies that boost economic growth, if consistently and successfully implemented, are likely in the long run to reduce corruption" (p. 440). Finally, the author finds that federal states are significantly more likely to be more

corrupt than unitary states. He believes that ethnic composition and/or size of these states have little to no effect on this but instead it is due to the decentralization of the state. The author notes that federal systems allow for bribes to be extracted at multiple levels of the state, whereas under unitary systems, the central government eliminates the ability of multiple levels of government to extract bribes.

Treisman (2000) concludes that the implications for policy are discouraging. He notes that the effect of democracy and increased imports are small and gradual. The effect of common law on corruption was related to colonial heritage and states are unlikely to be colonized simply to reduce corruption. The same applies to the Protestant tradition as well. Economic development may help reduce corruption however this may be effective through other related variables, which are difficult to determine. The author argues that in order to formulate good policy, policymakers must examine these predetermined factors (2000).

The strength of Treisman's (2000) article comes from its wide array of variables. By analyzing twelve variables, Treisman (2000) can identify how each one affects the others, and which ones play the most significant role in state corruption. This is also its primary weakness. With so many variables, it seems difficult to pin point which ones have the largest effects on corruption simply because some of the variables are related somehow to other variables in his study.

Differences Among Rational Choice Theories

From the aspect of the Rational Choice school of thought, there are several important differences. In comparison to Mookherjee and Png's article, Becker and Sigler (1974) focus more on combating the ills of corruption, while Mookherjee and Png (1995) more closely

examine how increased penalties further hurt enforcement. While Becker and Stigler (1974) analyze how increasing wages decrease corruption, Mookherjee and Png (1995) look at how increased penalties can actually increase bribes. While both Becker and Sigler (1974) and Mookherjee and Png (1995) focus on different poles of bureaucracies' role in reducing corruption (wages versus penalties), they both believe that increasing wages can provide an effective tool to combating corruption. The most obvious difference between the Rational Choice theorists and the other schools of thought is their emphasis on the role of the individual.

In regard to the differences between Rational Choice theorists and Structuralists, the major contrast is the level of analysis. It should be noted however that Van Rijckeghem and Weder (2001), Treisman (2000) and Rauch and Evans (2000) all take note of the possibility that higher wages may decrease corruption. Van Rijckeghem and Weder (2001) believe that there must be a rather large increase in wages for corruption to decrease, Treisman's (2000) structural analysis finds there to be no relationship between wages and corruption, and Rauch and Evans (2000) simply could not establish a relationship with their data.

Differences Among Structuralists

The major differences between Structuralists and Rational Choice theorists concern the relationship between how increased wages for civil servants affect levels of corruption. While the three major Structuralists works focus on the framework which corruption occurs in, they do discuss the role of wages.

Treisman's work contrasts sharply with the other articles. While both Becker and Stigler (1974) and Mookherjee and Png's (1995) stress the importance of the individual and

his/her wages, Treisman (2000) finds this unnecessary and ineffective. In regards to the other Structuralists there are also a few differences. While Treisman (2000) argues that because of the deep structural characteristics which cause corruption, corruption is difficult to fight. Rauch and Evans (2000) on the other hand argue that meritocratic promotion and recruitment can help combat corruption, while Van Rijckeghem and Weder (2001) only examine corruption through the lens of wages and rule of law. There are several important similarities as well though. Treisman (2000) also agrees with Becker and Stigler's (1974) and Mookherjee and Png's (1995) assumption that wages can affect corruption however his data found this to be inconclusive. The other three Structuralists also fall in line with the overall tone of Treisman's paper, primarily that by identifying structural features of a state, one can identify the trouble spots within that structure, and formulate policy to help combat corruption.

There are several noticeable similarities between Van Rijckeghem and Weder (2001) and the other works as well. First, as noted above, Van Rijckeghem and Weder (2001) generally agree with Becker and Stigler (1974) that wage policy can have an important impact on corruption rates. They also agree with Mookherjee and Png (1995) that most states rely on increasing penalties, even though both works agree that this is an ineffective way to fight corruption. Van Rijckeghem and Weder (2001) work is also in line with that of Treisman (2000) and Rauch and Evans (2000), primarily in regard to the necessity of implementing important structural elements in order to fight corruption.

There are also sharp contrasts as well. First, Van Rijckeghem and Weder (2001) differ from Becker and Stigler (1974) not in principal, but in their results. While Becker and Stigler (1974) believe that increased wages can fight the temptation to take bribes, Van

Rijckeghem and Weder (2001) find it is far more complicated and is typically not economically feasible. The major difference between Van Rijckeghem and Weder's (2001) work and that of Rauch and Evans (2000) is the role of merit in bureaucratic efficiency. While Rauch and Evans (2000) believe that merit is important in decreasing corruption, Van Rijckeghem and Weder (2001) omit this from their study, instead focusing on rule of law. It contrasts with Treisman's (2000) work in that he addresses corruption from the framework of historical aspects along with economic and political structures.

Contrasting Theories

While not part of this study, it should be noted that there are other theoretical approaches concerning corruption. Culturalists examine corruption from the perspective of how cultural norms and morals affect the behavior of actors. For example, Edward Van Roy's (1970) "On the Theory of Corruption" argues that corruption actually has a useful place in certain societies. He utilizes a case study regarding corruption in Thailand and finds that corruption can be a useful tool that, "maintains systemic stability and continuity by marking behavioral boundaries congruent with well-established morality" (p. 109). Van Roy provides an excellent example of how cultural variables can be employed in furthering scholars understanding of corruption.

From the same Culturalist perspective, Bryan Husted (1999) writes that there has been a general neglect of the cultural variables that effect the level and degree of corruption within a society. Husted argues that most of the cultural focus on corruption emphasizes perceptions in the business and academic communities, but lacks proper explanations of differences across states. Accordingly, Husted (1999) believes that these approaches are

limited because of the neglect of, "cultural contexts, in which corrupt behavior occurs" (p. 340).

The problem with using culture to analyze corruption is the lack of a broad approach which is available to Rational Choice and Structuralist theorists. Employing culture is useful when analyzing states on a case by case basis, however when examining corruption cross-nationally, culture may play a secondary role to variables such as actor decisions or structural elements of the state.

Gerring and Thacker's (2004) posits simply that federal, presidential systems are far more likely to be corrupt than unitary parliamentary systems. Gerring and Thacker (2004) believe very little attention has been placed on analyzing the constitutional structures of states in relation to corruption. They believe that by analyzing the most basic aspects of political institutions, scholars can further the analysis set up by other Structuralist authors. Like Treisman (2000), Gerring and Thacker (2004) argue that federal systems are more likely to be corrupt because of a lack of centralization. This centralization helps prevent multiple points where corruption can occur.

While the Rational Choice theorists provide the basis of my hypothesis, the Structuralists seem to be in opposition of it. Becker and Stigler (1974) and Mookherjee and Png (1995) both provide a possible connection between civil servant wages and level of corruption within a state. On the other hand, the work of Rauch and Evans (2000), Treisman (2000) and Van Rijckeghem and Weder (2001), all find the relationship to be either ambiguous or non-existent. This seems to pit the two major theories concerning corruption against each other. In the subsequent sections I will analyze recent wage and corruption data

to re-examine this debate, and try to explain the relationship between bureaucratic wages and corruption. In particular, I will see whether different categories of bureaucrats respond to wage increases differently.

Methodology

My primary hypothesis is that as bureaucratic wages increase, the level of corruption decreases. I test this by dividing bureaucrats into two distinct groups: a managerial group and a clerical group. I posit that theoretically, if low wage office clerks are more likely to engage in corruption as a means to supplement their income; there should be a higher correlation between wages and corruption for office clerks than for managers.

In order to provide a cross-national analysis of wages and corruption, I also test how the gap between manufacturing wages and bureaucratic wages affects the level of corruption. This gap reflects salary inequalities of bureaucrats relative to the rest of the society, adjusted for how wealthy the society is. If my hypothesis is correct, smaller gaps should lead to less corruption.

Variables

To measure levels of corruption, I utilize the *Corruption Perceptions Index* (CPI). The CPI is measured by Transparency International (TI), an organization at the forefront of fighting corruption throughout the world. TI publishes the CPI annually as a way to measure the perceived levels of corruption within a state, opposed to actual levels of corruption. In order to measure these perceived levels of corruption TI utilizes surveys employed by a number of international and regional institutions. These surveys ask questions concerning the overall nature of corruption within a state and are finally standardized to create a list of

scores which allow the organization to rank states by degrees of corruption. The CPI is an important measure of bureaucratic corruption because many of the surveys included in the study are aimed toward businesses, which have to interact with the state or local civil services in order to receive certain permits, meet specific regulations, or are subject to various forms of government oversight. The CPI measures corruption on a 0 to 9 scale, with 0 being the most corrupt and 9 being the least corrupt.

The CPI average measures the average of CPI data from the years where bureaucratic wages are available. Because civil service wages are not available for every year for every country, the only CPI data averaged are those where bureaucratic wages are available. For example, while CPI data is available for the United States from 2001 to 2008, civil service wages could only be measured from 2003 to 2007, so the average CPI included is from 2003 to 2007. In this study, the measure of state corruption is called CPIAVG.

I use data from the International Labor Organization (ILO) to measure bureaucratic wages. The wages have been split into two separate categories, *BURPAY1* (managerial level) and *BURPAY2* (clerical level). The *BURPAY1* variable measures the average wages of civil servants at the central, regional and local levels of government. Individuals included in the *BURPAY1* measure are considered mid-level managers or assistant directors. Bureaucratic wages are provided by the ILO, and all salaries are per year in U.S. dollars. This is a key variable in analyzing my hypothesis. According to the ILO, this data measures the wages of civil servants involved in,

> dealing with particular administrative and policy matters concerning such government services as domestic affairs, foreign affairs, defense, education, environment, health,

> social welfare, labor, social security, industry, agriculture, justice, finance, transport, communications, staffing and organization of government services and other government functions (2009a, Section 159).

The members of this section of the civil service play an important role in bureaucratic corruption. It is this population which is involved in regulation, implementation and distribution of government funds and policy, and thus susceptible to bribery and malfeasance.

For the purposes of analyzing wages and corruption, I have taken an average of all years included (for example, Algeria only includes wages from 2005 to 2007, so the *BURPAY1* for Algeria is the average of annual salaries from 2005 to 2007 at all three levels of government, central, regional and local).

BURPAY2 measures the wages of civil servants, who are the administration or secretarial level of bureaucracy, and people employed at this level are considered "office clerks." These jobs are slightly lower on the authority hierarchy and pay slightly to considerably less than jobs defined as managerial. This data is measured similar to *BURPAY1* and is provided by the same source, the International Labor Organization. According to the ILO, an office clerk is responsible for a number of administrative tasks such as correspondence, replying to inquiries, maintaining office records, sales records, maintains account statements and check books, checks documents, and general administration at the leisure of mid-level management (2009a). These individuals are important because of their level of access to government programs and other bureaucrats. Typically, when someone has an issue with a specific government agency, these are the first people many folks will have

access to. I have measured *BURPAY2* the same way I measured *BURPAY1*, taking the average of all years included in the ILO data.

In this paper I have compiled *manufacturing wages* from 18 of the 30 states included in this study. This variable is called *MANPAY1*. As a secondary measure of the relationship between bureaucratic wages and corruption I have decided to analyze the relationship between manufacturing wages and corruption. Since my hypothesis posits that higher civil service wages typically lead to lower levels of corruption, larger gaps between manufacturing wages and civil service wages should lead to higher levels of corruption. This may be due to the fact that highly qualified individuals are more likely to take higher paying jobs, which are typically manufacturing related jobs, than lower paying government positions. These manufacturing wages are also derived from the International Labor Organization, and converted from national currencies into 2008 U.S. dollars. Manufacturing jobs are defined using the International Standard Industrial Classification (ISIC) of all economic activities revision 3. In order to create the *MANPAY1* variable, I have taken the average annual earnings of all workers in all sectors of the manufacturing sector of each state.

To measure the changes in Gross Domestic Product across states, I have also calculated the gap between civil servant wages and manufacturing wages. This variable is called *BURMANDIF*. If manufacturing wages are higher than bureaucratic wages, and if higher skilled workers desire higher wages, than the smaller gap between the two categories, the lower the level of corruption should be.

As an additional control I have also measured the gap between wages and average national incomes. I employ Gross National Income provided by the World Bank. I also

measure the gap between managerial wages and GNI and clerical wages and GNI. This data is coded *BUR1GNIDIF* (% differences between managerial wages and GNI) and *BUR2GNIDIF* (% difference between clerical wages and GNI), respectively.

Sample

Of the 180 cases where CPI data is available, only 30 states are included in this study. This is due to the lack of reliable and complete data concerning both bureaucratic and manufacturing wages. While some states had variables which included data on either bureaucratic wages or manufacturing wages, only 30 states had reliable data concerning both[1]. Of the 30 cases analyzed, only 18 cases have reliable data concerning both bureaucratic wages and manufacturing wages[2]. The remaining cases are included in this study because of the reliability of bureaucratic wage data.

[1] Algeria, Australia, Austria, Botswana, Brazil, Bulgaria, Canada, Chile, China, Costa Rica, Cyprus, the Czech Republic, El Salvador, Germany, Guyana, Hungary, Italy, Jordan, Latvia, Lithuania, Mauritius, Mexico, the Philippines, Poland, South Korea, Russia, the United Kingdom, the United States and Zambia

[2] Australia, Brazil, Chile, China, Costa Rica, Cyprus, El Salvador, Germany, Latvia, Lithuania, Mauritius, Mexico, Philippines, Poland, UK, USA and Zambia

Descriptive Statistics

Table 1: Descriptive Statistics[3]

	Minimum	Maximum	Mean	Std. Deviation
CPI Average	2.5	8.9	5.03	2.05
GDP/Capita	$1,500	$47,000	$19,303.33	$12,673.89
Managerial Wages	$1,673.58	$76,642	$18,148.27	$20,210.74
Office Clerk Wages	$678.13	$38,977.44	$10,636.79	$10,910.15

The descriptive statistics presented in Table 1 illustrate a few basic points concerning this study. First of all, the level of corruption ranges between a high level of corruption (CPI score of 2.5, Guyana) and low level of corruption (8.9, Canada). The mean CPI falls close to the middle of the CPI range, with a mean CPI score of 5.03. There is also a wide range between the highest and lowest managerial wages. Algeria has the lowest wages for managers at $1673.58, and Germany has the highest wages at $76,642. The average managerial wage is $18,148.27. There is also a wide range among office clerk wages. El Salvador has the lowest wages for office clerks, at $678.13, while Germany pays the highest to their office clerks $38,977.44.

Although the number of cases analyzed is small, Table 2 illustrates that they are representative of all global regions. States are broken down into region simply as a means to determine the representativeness of the cases selected.

[3] Algeria, Australia, Austria, Botswana, Brazil, Bulgaria, Canada, Chile, China, Costa Rica, Cyprus, the Czech Republic, El Salvador, Germany, Guyana, Hungary, Italy, Jordan, Latvia, Lithuania, Mauritius, Mexico, the Philippines, Poland, South Korea, Russia, the United Kingdom, the United States and Zambia

Table 2: Region Frequency

Region	# of Cases	Percentage
Asia	3	10.0
W. Europe	6	20.0
E. Europe	7	23.3
Latin America	5	16.7
North America	3	10.0
N. Africa/Middle East	2	6.7
Oceania	1	3.3
Sub-Saharan Africa	3	10.0
Totals	30	100.0

While highly developed states represent almost a third of all cases, the bulk of states have GDP per capita lower than the average of all states included. The mean GDP per capita for all states included is $$19,303.33. Of the thirty states in this study, almost two-thirds of them (19) have below average GDP per capita. Of the remaining states only eleven, or 36.6%, of the cases have GDP per capita's higher than the average.

Analysis

I will begin my analysis by looking at correlations, then move on to regression analysis. My correlations will examine the strength of relationships between the several variables such as wages, corruption and GDP per capia. The regression analysis is employed to examine the size of wage affects on corruption. I will begin by investigating the role of bureaucratic wages on CPI scores, which will help explain the role wages have on levels of corruption. I will then move on to examine how gaps between manufacturing wages and civil servant wages and also how the gap between wages and GNI affect CPI scores.

Results

My analysis suggests that both sides of the debate are partially correct. Rational Choice theory correctly predicts that wage increases do reduce corruption, even when controlling for changes in GDP. Structuralist theory on the other hand correctly predicts that the effects of wage increases are small. My contribution to the debate, however, is the finding that when we break down civil servants into managerial and clerical classes there is an obvious difference between the effects salary increases have on corruption. The major finding of this work is that clerk responses to wage increases are *twice as large* as managerial responses.

Bureaucratic Wage Analysis

Table 3: CPI average managerial wages and clerical wages correlations using Pearson's R

	Managerial Wages	Clerical Wages
CPI Average	.734*	.818*

**-Significant at the 0.01 level*

My primary measure of the relationship between bureaucratic wages and levels of corruption illustrates a strong correlation between the two variables. The data in Table 3 shows that there is a strong positive correlation between CPI average and both managerial wages and clerical wages. Both correlations are significant at the .01 level. This would imply

that as bureaucratic wages increase at both levels of the civil service, so too does the state's CPI scores. In other words states with higher civil servant wages tend to have lower levels of corruption. In addition, it is obvious that the relationship is stronger for clerks than it is for managers.

While these strong correlations support my hypothesis, they may be somewhat misleading. When I conduct a regression analysis of the effects of civil servant wages on CPI, I find that like Van Rijckeghem and Weder (2001) posited in their article, that a sizable increase in wages must be implemented in order to produce a meaningful reduction in corruption.

Table 4: Regression analysis of managerial wages and CPI average[ab]

	B value	Std. error	Significance
Constant	3.609	.394	.000
Managerial Wages	.0745	.000	.000

a. R-squared value: .539
b. Dependent Variable: CPI Average

If the data from the regression analysis above (Table 4) is inserted into the regression formula below, it is possible to illustrate how much of an increase in managerial wages is necessary in order to increase CPI scores by one full point.

$$= \frac{\quad + \quad 1(\quad)}{1000}$$

The CPI is measured on a scale of 0-9, with higher scores meaning lower levels of corruption. The above formula demonstrates the effect on CPI scores by increasing managerial wages by $1000. Every increase in $1000 will lead to an increase in the CPI average score by .0745. If the dependent variable (CPI average) is set to 1, and the formula is

solved for the independent variable (managerial wages divided by 1000), the result is equal to $13,395.85. In other words, if managerial wages are increased by $13,395.85, then the CPI score will increase by one full point. This is problematic for actually implementing an increased wage solution in order to fight corruption considering the most corrupt states are ones that do not perform the best economically.

When I examine the results of the regression analysis of clerical wages and CPI averages, I find that the results are similar, however the effects on corruption are much larger.

Table 5: Regression analysis of clerical wages and CPI averages[ab]

	B value	Std. error	Significance
Constant	3.416	.321	.000
Clerical Wages	.154	.021	.000

a. R-Squared value: .670
b. Dependent Variable: CPI Average

If the data from the regression analysis above (Table 5) is inserted into the same regression formula, it is possible to illustrate how much of an increase in clerical wages is necessary in order to increase CPI scores by one full point.

$$= \frac{\quad}{1000} + 1(\quad)$$

The above formula demonstrates the effect on CPI scores by increasing clerical wages by $1000. Every increase in $1000 will lead to an increase in the CPI average score by .154. If the dependent variable (CPI average) is set to 1, and the formula is solved for the independent variable (clerical wages divided by 1000), the result is equal to $6493.50.

This regression is even more significant than the managerial wages regression, with the affect being *twice as large* as it is for managers. In order for there to be a one point increase in the CPI score, office worker wages must increase by $6493.50. While increasing the wages of specialized civil servants may be an economic burden for some states, increasing the wages of office workers may be a more plausible policy for combating corruption.

Controlling for Economic Conditions

Table 6: GDP per capita, CPI average, managerial and clerical wage correlations using Pearson's R

	GDP per capita
CPI average	.822*
Managerial wages	.818*
Clerical wages	.893*

*-*Correlation is significant at the .01 level*

The apparent correlations between managerial wages, clerical wages and CPI averages may simply be a function of GDP. In order to control for this I analyzed bureaucratic wages relative to private sector wages, rather than in absolute terms. In this way, across the board increases in wealth will not affect my final results. As explained in the methodology section, I regress corruption levels on GDP per capita between bureaucratic wages and private sector (manufacturing) wages.

Table 6 above illustrates the relationship between Gross Domestic Product per capita and corruption. With a correlation of .822, there is a strong positive correlation between GDP per capita and CPI scores. So as GDP per capita increases so too do CPI scores. This table also shows how higher levels of GDP per capita also tend to be coupled with higher civil

service wages. This makes sense, since states with higher GDP per capita are more likely to have higher wages at all levels of the bureaucracy. Both of these correlations demonstrate how wealthier states are typically the ones with lower levels of perceived corruption.

When I attempt to analyze the results of a gap between manufacturing wages and bureaucratic wages however, the results are ambiguous. Van Rijckeghem and Weder (2001) analyze the relationship between differences in wages between the public and private sector. While Van Rijckeghem and Weder (2001) conclude that decreases in the gap in wages between the two sectors can ultimately help fight corruption by attracting more qualified personnel, as Table 7 illustrates, the data in this study is inconclusive.

Table 7: Percent difference between bureaucratic wages and managerial wages and CPI average correlations using Pearson's R

	% Difference between managerial wages and manufacturing wages	% Difference between clerical wages and manufacturing wages
CPIAVG	-.401	-.413

As seen in Table 7, I find there is a moderate negative correlation between the size of the difference between managerial wages, clerical wages and manufacturing wages and CPI scores. According to the data above, as the gap between wages in the public sector and the private sector decreases, the CPI average scores increase. By increasing parity between public sector and private sector wages, then the level of corruption within a state should decrease. By breaking up the civil service along managerial and clerical lines, the effect of closing the gap between clerical wages and manufacturing wages is slightly higher than that of managerial wages and manufacturing wages.

When I examine the gap between managerial wages, office worker wages and gross national income with regards to CPI averages, I also find there is a moderate negative correlation between the three variables.

Table 8: Correlations between CPI average and percent difference between managerial wages and GNI and percent difference between clerical wages and GNI using Pearson's R

	% Difference between managerial wages and GNI	% Differences between clerical wages and GNI
CPIAVG	-.252	-.202

Table 8 further demonstrates the possibility that there is a potential relationship between CPI scores and differences in wages between civil servants, office workers and the gross national income of states. The examination of the gaps between bureaucratic wages and manufacturing wages and gross national incomes illustrates the importance of maintaining competitive wages for civil servants.

According to Rauch and Evans (2000), when merit is used to promote highly skilled workers into and within the bureaucracy, states are less likely to be corrupt. If this is true then decreasing the gap in wages between the private sector and public sector, governments may be able to attract higher skilled workers. With higher skilled workers, perhaps states can reduce corruption.

These correlations suggest that wage increases *do* reduce corruption, independent of overall GDP changes. I utilize the most recent and reliable data to find that while Rational Choice scholars are correct concerning how civil service wage increases reduce corruption, Structuralists are also correct in saying that the effects are small, or require large increases in

wages. What this paper has suggested however, is that scholars should not consider the bureaucracy as a single monolithic unit, but instead should break it down into different categories.

Conclusion

As noted before, Rational Choice theorists and Structuralists have argued opposing theories concerning the role that wages play in fighting corruption. Rational Choice theorists contend that increasing wages can be a very effective tool for decreasing malfeasance, while Structuralist theorists argue that increasing civil service wages can do very little. Although both schools of thought have analyzed the wage-corruption hypothesis, this thesis has gone a step further by breaking down the civil service into two separate entities: managerial officers and clerical workers.

I find that while increasing the wages of bureaucratic officials and office workers may indeed lead to lower levels of corruption, the cost of implementation makes such a policy inefficient. In the end, an increase of more than $13,395.85 per mid-level bureaucrat, per year would be required to increase CPI scores by a full point. While there is a strong positive correlation between bureaucratic wages and CPI scores, the cost of utilizing increased wages as a method of fighting corruption is ultimately not feasible. A more reasonable approach, though still limiting from a budgetary point of view, would be to increase the wages of clerical workers. The regressions found in this research would require that an increase of around $6,400 would be required to increase CPI scores by one full point.

I have controlled for relative changes in GDP by analyzing the gap between bureaucratic wages of both managers and clerks by analyzing the gap between public and

private wages. What I find is that the larger the gap between bureaucratic wages and manufacturing wages the higher the level of corruption. As noted in earlier studies however, particularly Van Rijckeghem and Weder's (2001) work, the larger the gap is between manufacturing wages and civil service wages, the more corrupt the bureaucracy may be. This relationship may be due to the fact that higher paying jobs may attract more qualified individuals. If the manufacturing sector is siphoning highly qualified individuals from the civil service, then one would expect lower quality work and higher levels of corruption. The lack of significance between the differences in manufacturing wages and civil service wages and CPI scores in this study may be attributed to sample size, as opposed to an actual lack of relationship.

While current research has focused on the relationship between wages and corruption, my research suggests a new approach. Scholars should instead gather more detailed data on different categories of bureaucrats in order to see the impact of wage increases on different aspects of the civil service. Research should focus on groups such as police, customs enforcement, business regulators and compare them to wages in the management groups and clerical groups. This may help provide a further level of analysis for future study.

Following the research of Treisman (2000) and Rauch and Evans (2000), perhaps a thorough examination of structural elements of states and wages along with levels of corruption should perhaps be analyzed. By looking at the relationships between constitutional structures, government types, levels of democratization, bureaucratic efficiency, economic structures, and differences between unitary and federal states, or parliamentary and presidential systems may also provide further levels of analysis on the subject of corruption and wages. While this study looked exclusively at the relationship between wages and

corruption, these structural elements should be examined in tandem with the wage-corruption hypothesis in order to further scholar's understandings of how such a relationship works.

In conclusion, there is indeed a relationship between wages paid to civil servants at both the lower and middle levels of bureaucracies, and the level of corruption within a state. When I breakdown civil servants into categories however, I find that it is easier to decrease corruption by paying clerical workers more than increasing wages to managers. While increases in salaries to both could potentially decrease corruption, it would be far less expensive to decrease wages to low level civil servants than middle level civil servants.

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VITA

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